PATENT SPECIFICATION

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COMPLETE SPECIFICATION.

Improvements in Electrical Controlling Apparatus.

I, ARCHIBALD MONTGOMERY LOW, Captain in His Majesty's Army, of Royal Flying Corps Experimental Works, Feltham, Middlesex, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to electrical controlling apparatus intended for effecting mechanical operations by electrical or electro-magnetic means, the invention being particularly designed for use in the controlling of aeroplanes and the like, although it is to be understood that it may be applied in general in cases where it is desired to perform mechanical operations by means of a selective electro-magnetic device.

The object of the invention is to provide improved apparatus of the above character and the invention consists in controlling apparatus comprising a number of electro-magnets arranged around a continuously or intermittently rotated screw, means being provided whereby, when any one of the magnets is excited, a bar or the like is caused to be traversed over the screw, the bar being connected by a wire or other means to the part which is to be controlled.

The invention is illustrated in the accompanying drawings in which:—

Figure 1 is an elevation partly in section on the line A—B of Figure 2, and

Figure 2, is a broken end elevation.

The apparatus consists of a screw 1 which has an extension passing into the hollow shaft 2 by which the screw is rotated. The screw rotates in bearings in the members 3, each of which is provided with a number of radial arms 4, four such arms being shown in the drawings. Between these arms are mounted the electro-magnets 5, the pole-pieces 6 of the magnets being secured to the outer ends of the arms. The armatures 7 of the magnets are adapted to slide between the arms 4 and carry studs or the like 8 in which are pivoted rods 9 which pass through holes 10, in the arms 4 and rest at their outer ends on the bars or rods 11. These bars pass through slots 12 in the arms 4 and are provided with pins 13, adapted to enter the threads of the screw 1 when the said bars are depressed. The bars 11, may have wires or the like (not shown) attached to their extremities, these wires passing to the apparatus it is desired to operate or control.

When any one of the magnets 5 is excited, the corresponding armature 7 with its stud 8 is drawn outwards and the outer ends of the rods 9 press the bar 11 inwards to cause the pin 13 to enter the thread of the screw 1. The bar 11 at once commences to move longitudinally and continues its motion until the pin 13 reaches the end of the thread on the screw 1 and passes into the circular groove 14; the bar 11 then ceases to move. When the magnet 5 ceases to be excited the arm 11 is pulled outwards and the armature 7 moved inwards by springs or the like (not shown).

If desired in order to allow of intermittent rotation of the screw 1, the shaft 2 may be driven through a friction clutch or the like. The pin 13 can then be allowed to travel along the screw until it reaches any desired position, when the rotation of the screw can be arrested by disengaging the clutch.

Although the apparatus has been described as containing four electro-magnets it can obviously be adapted to employ a larger or smaller number, the number of magnets employed being equal to the number of different controls it is desired to obtain.

[Price 1/-]

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. Controlling apparatus comprising a number of electro-magnets arranged around a continuously or intermittently rotated screw, means being provided whereby, when any one of the magnets is excited, a bar or the like is caused to be traversed over the screw, substantially as described.

2. Controlling apparatus as claimed in Claim 1 in which each magnet has a slidable armature to which are pivoted arms adapted to operate longitudinally-moveable bars or the like to bring them into position to be traversed over the screw, substantially as described.

3. Controlling apparatus as claimed in Claim 2 in which each of the bars or like has attached to it a pin adapted, when the bar is pressed inwards, to engage the thread of a continuously or intermittently rotated screw and to move the bar longitudinally, substantially as described.

4. Controlling apparatus as claimed in Claim 1 in which each bar or the like has attached to its extremity a wire or the like adapted to effect the required control when the bar is moved longitudinally, substantially as described.

5. Controlling apparatus constructed, arranged, and operating substantially as described in the specification and as shown on the accompanying drawings.

Dated this 31st day of May, 1917.

A. M. LOW.

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[This Drawing is a reproduction of the Original on a reduced scale]

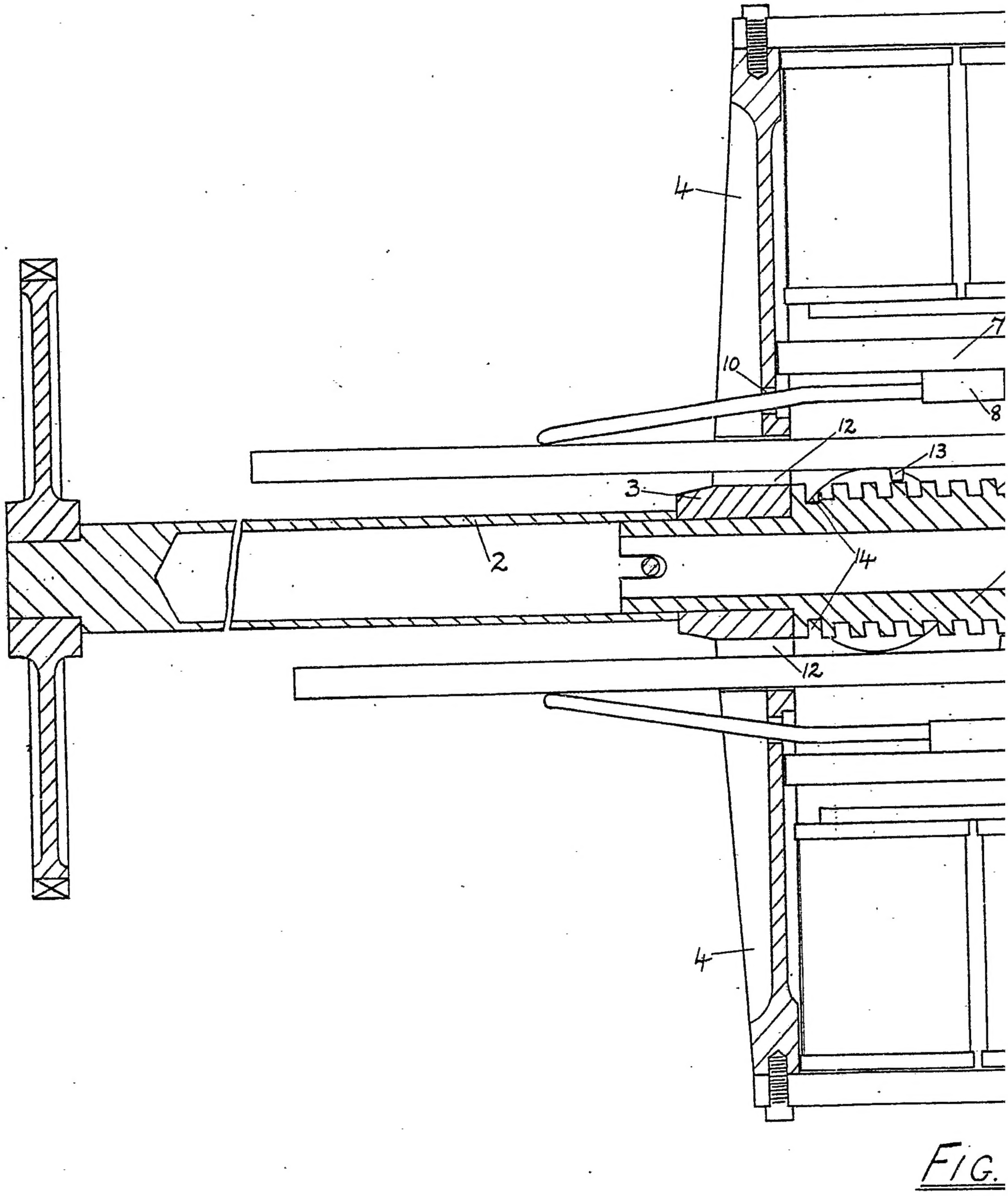

FIG.

2 SHEETS
SHEET 1

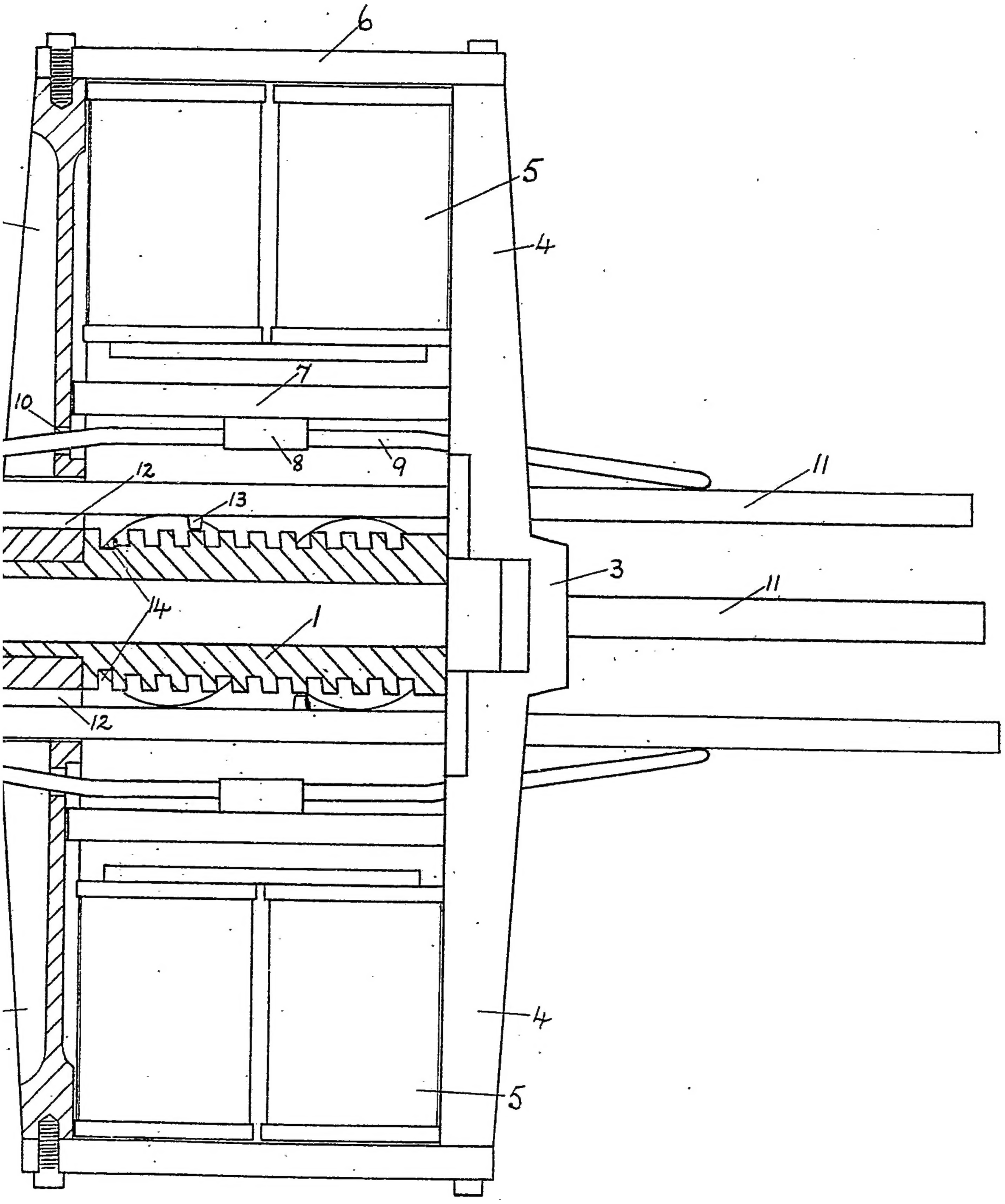

FIG. 1

Malby&Sons. Photo-Litho.

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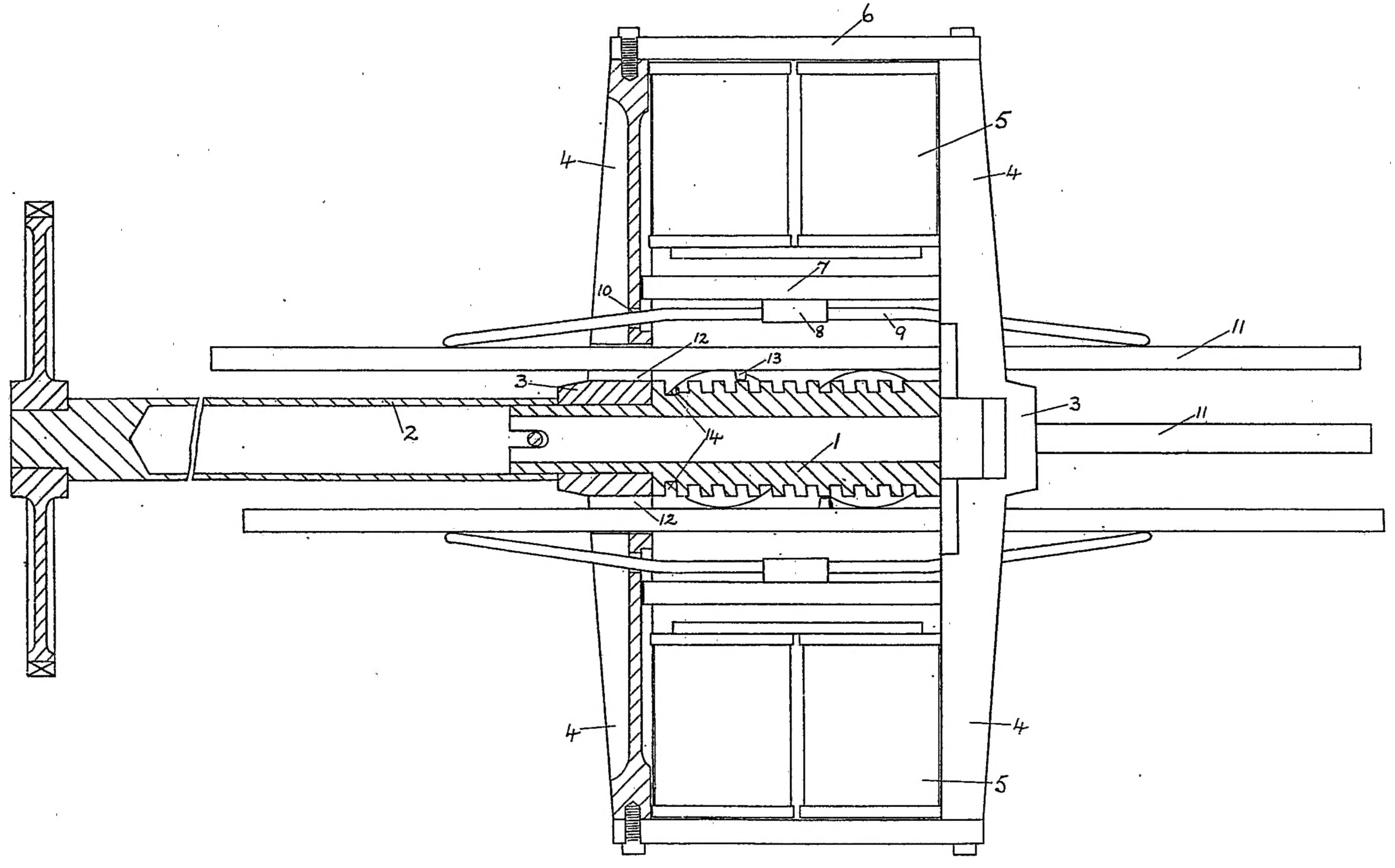

FIG. 1

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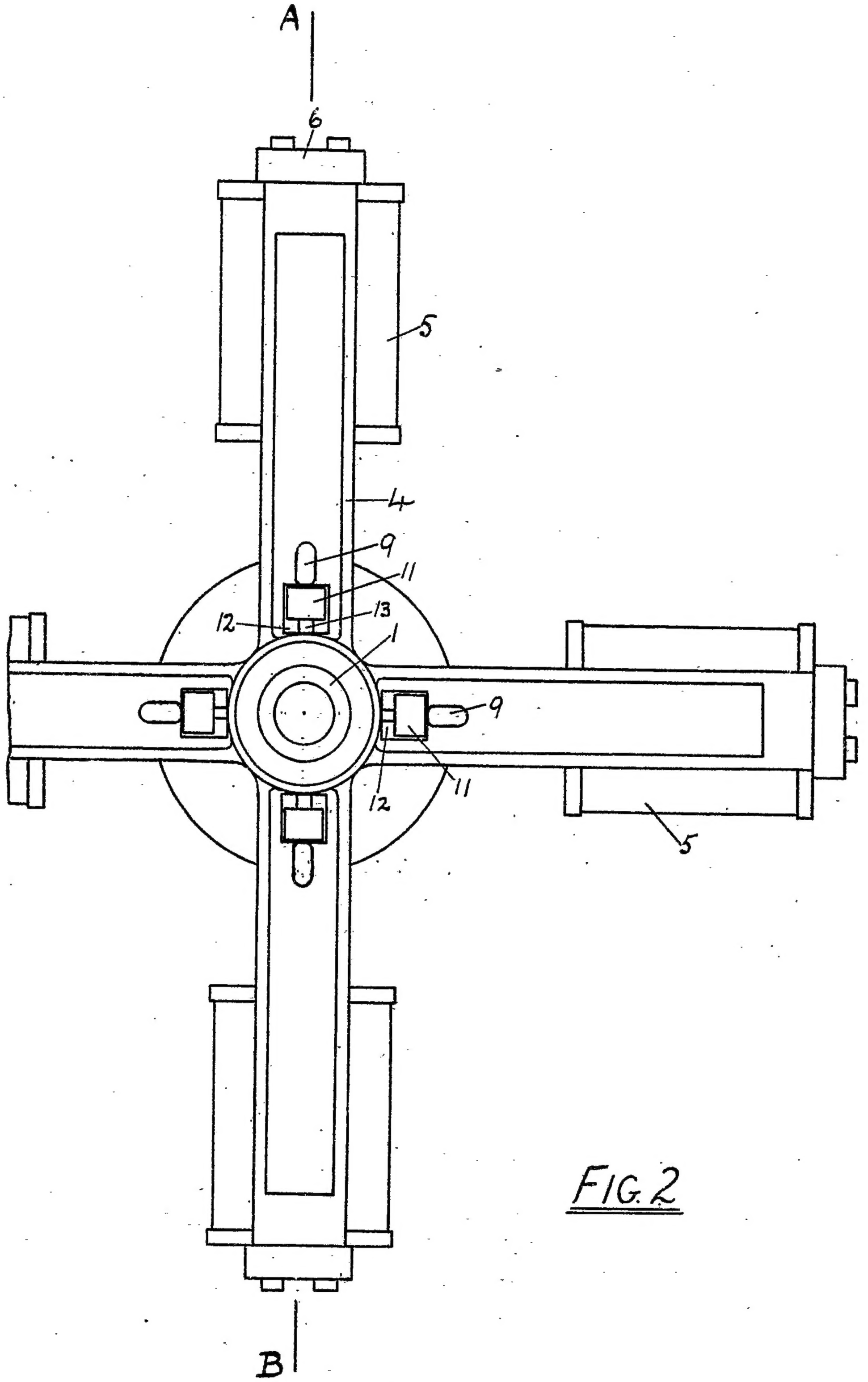

FIG. 2

Malby&Sons, Photo-Litho